



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
-----------------	-------------	----------------------	---------------------	------------------

10/697,191

10/30/2003

Manish Sharma

10011752-7

8183

7590

03/31/2004

HEWLETT-PACKARD COMPANY

Intellectual Property Administration

P. O. Box 272400

Fort Collins, CO 80527-2400

EXAMINER

TRAN, MAI HUONG C

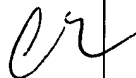
ART UNIT

PAPER NUMBER

2818

DATE MAILED: 03/31/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	Application No. 10/697,191	Applicant(s) SHARMA ET AL. 	
	Examiner Mai-Huong Tran	Art Unit 2818	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 30 October 2003.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 9, 10 and 16-26 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 9, 10 and 16-26 is/are rejected.
- 7) ☒ Claim(s) 9 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

## **DETAILED ACTION**

### **Claim Objections**

Claim 9 is objected to because of the following reasons.

Claim 1 has been canceled. Therefore, claim 9 should no longer depend to claim 1.

Appropriate correction is required.

### **Claim Rejections - 35 U.S.C. § 102**

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 9-10 and 16-26 are rejected under 35 U. S. C. § 102 (e) as being anticipated by U.S. Patent No. 6,404,674 to Anthony et al.

Regarding to claim 9, Anthony discloses a method of performing a read operation on a device, the method comprising setting the magnetization orientation M1 of the second layer in a first direction; determining a resistance state of the device; setting the magnetization orientation M2 of the second layer in a second direction; determining a resistance state of the device; and examining the change in resistance states as set forth in col. 9, lines 12-17, and figs. 8b, 9a.

Regarding to claim 10, the method wherein the change is examined by determining the direction of resistance state transition (col. 9, lines 12-17).

Regarding to claim 16, Anthony discloses a data storage device comprising an array of magnetic memory cells, each memory cell including a data ferromagnetic layer 11 and a reference ferromagnetic layer 17; a plurality of first traces extending in a first direction M1, each first trace in contact with a group of data layers; and a plurality of structures extending in a second direction M2, each structure forming closed flux paths with a group of reference layers as set forth in col. 8, lines 47-67, and figs. 8b, 9a-9b.

Regarding to claim 17, the device, wherein the ferromagnetic layers have magnetizations that can be switched between first and second directions during write operations, only the reference layers being switchable between first and second directions during read operations (col. 1, lines 25-67).

Regarding to claim 18, the device wherein the first direction is roughly orthogonal to the second direction (col. 15, lines 27-66, and fig. 11).

Regarding to claim 19, the device further comprising a circuit for setting the magnetization orientation of the reference layer of a selected memory cell in a first direction, determining a resistance state of the selected memory cell, setting the

magnetization orientation of the reference layer of the selected memory cell in a second direction, determining a resistance state of the selected memory cell, and examining the change in resistance states of the selected memory cell (col. 8, lines 47-67, and figs. 8b, 9a-9b).

Regarding to claim 20, the device wherein the circuit examines the change by determining the direction of resistance state transition (col. 1, lines 66-67).

Regarding to claim 21, the device wherein the circuit determines the resistance state of a selected memory cell by applying a potential to a structure crossing the selected memory cell; and supplying an equal potential to a subset of structures and traces not crossing the selected memory cell (col. 1, lines 66-67).

Regarding to claim 22, the device wherein each structure includes a conductor clad with ferromagnetic material, portions of the ferromagnetic material in magnetic communication with a group of reference layers (col. 8, lines 47-61).

Claim 23 is rejected under the same rationale set forth above to claim 22.

Claim 24 is rejected under the same rationale set forth above to claim 22.


Claim 25 is rejected under the same rationale set forth above to claim 22.

Regarding to claim 26, Anthony discloses a method of reading a selected memory cell in the device, the method comprising applying spaced apart first and second pulses to the selected memory cell, the first and second pulses having opposite polarity; and examining a transition of resistance states of the selected memory cell as set forth in col. 9, lines 12-17, and figs. 8b, 9a.

### Conclusion

Any inquiry concerning this communication on earlier communications from the examiner should be directed to Mai-Huong Tran, (571) 272-1796. The examiner can normally be reached on Monday-Thursday from 8:00 AM to 6:30 PM. The examiner's supervisor, David Nelms can be reached on (571) 272-1787.

The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306. Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.

  
Mai-Huong Tran

  
David Nelms  
Supervisory Patent Examiner  
Technology Center 2800